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THE CHACO IDIOMS.

STUDENTS of American languages are laid under further obligations to Mr. Samuel A. Lafone Quevedo by his recent publications on the Mbaya dialect, and those of the Matacos and Mataguayos. They are published in the Boletín del Instituto Geográfico Argentino, Tom. XVII. The last mentioned is drawn from the vocabularies of the traveler d'Orbigny, and is prefaced with a valuable introduction. The Mbayas are the Guaycurus of the older writers.

The tribes of the Gran Chaco have remained in the utmost entanglement and doubt until the numerous and careful studies of Lafone Quevedo have enabled us to classify them with a close approach to correctness. Here, as elsewhere, when it becomes possible to compare in detail a number of tongues, we find that many of their dissimilarities disappear, and the supposed diverse stocks melt into related groups of dialects.

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ASTRONOMICAL NOTES.

WE learn from the February number of *Popular Astronomy* that Dr. See and Mr. Cogshall have discovered a number of new southern double stars at the Lowell observatory in the city of Mexico. Five objects are enumerated. Strange to say, three of these objects are bright stars with very faint companions of about the 13th magnitude, all situated at pretty nearly the same distance and position angle with respect to the principal star. The *a priori* probability of such a triple discovery is so small that we suspect the possibility of the observer's having been misled by a 'ghost.' We shall look with interest for a confirmation of these discoveries, if there is any other large telescope far enough south to examine these objects with any hope of success. Possibly the new McLean telescope, soon to be

mounted at the Cape of Good Hope, will be able to show these double stars.

THE *Astronomische Nachrichten* of January 15th contains an article by Dr. F. Cohn, in which he gives a new explanation of the systematic errors of heliometer measures. It has been found by various astronomers that measures of small distances made with this instrument require positive corrections. Dr. Cohn now points out that these peculiarities can be explained if we assume that all distances, both large and small, require the same systematic correction. This idea leads to the simplest explanation of these puzzling systematic errors that we have yet seen.

IN the January 26th issue of the same journal Dr. Wilsing considers the question of the absorption of light in astronomical objectives, and shows that, if the size of objectives be continually increased, a point is soon reached where the absorption more than counterbalances the increase in the light-gathering power. If the size of the objective be increased beyond this point the quantity of light reaching the focal plane will diminish.

WE have received a Doctor's dissertation by W. Ebert, in which the author deals with the possible disruption of the Solar System by the passage through it of a star having very great velocity. He comes to the conclusion that such an event would probably not produce disturbances of any great importance, unless one of the planets should happen to lie very near the course of the passing star.

H. J.

SCIENTIFIC NOTES AND NEWS.

M. A. CHATIN has been elected President of the Paris Academy of Sciences in succession to M. A. Cornu. M. M. Cornu has been elected President of the Botanical Society of France.

M. FAYE, the eminent astronomer and meteorologist, who is now eighty-three years

of age, was elected a member of the Paris Academy of Sciences fifty years ago. This jubilee was celebrated by the Academy on January 24th, a speech being made by the President and a gold medal being presented to M. Faye. In the evening a dinner was given to M. Faye, at which he was presented with the insignia of the Grand Cross of the Legion of Honor.

THE Matteucci Medal of the Italian Society of Sciences has been awarded to Professor Rowland, in recognition of his work in spectrometry.

THE London Society of Engineers has awarded the following premiums for papers read during the year: The President's gold medal to Mr. George Thudichum for his paper on 'The Ultimate Purification of Sewage;' the 'Bessemer Premium' to Mr. D. B. Butler for his paper on 'The Effect of Admixtures of Kentish Ragstone, etc., upon Portland Cement;' the 'Rawlinson Premium' to Mr. W. G. Wales for his paper on 'Discharging and Storing Grain,' and a 'Society's Premium' to Mr. M. A. Pollard-Urquhart for his paper on 'Examples of Railway Bridges for Branch Lines.'

THE lectures at the Johns Hopkins University by Sir Archibald Geikie on the principles of geology, which we have already announced, will be given daily, beginning Wednesday, April 21st. In addition to the six lectures which compose this course, strictly intended for geologists, Sir Archibald Geikie will give one public lecture during his stay in Baltimore.

DR. ALEXANDER C. ABBOTT, professor of hygiene in the University of Pennsylvania, has been appointed chief of the bacteriological division of the Philadelphia bureau of health.

M. FILHOL has been elected a member of the section of anatomy and zoology of the Paris Academy, in the room of the late M. Sappey.

MR. MIDDLETON WAKE, the Sandars reader in bibliography at Cambridge, will deliver four lectures on 'The Invention of Printing,' with special reference to book illustration.

THE Berlin Academy of Sciences has made a grant of 600 marks to Professor H. E. Ziegler,

of Freiburg, for his studies in the mechanics of development.

ACCORDING to the *British Medical Journal* the subscriptions in France and other countries for a statue to Pasteur now amount to more than £10,000. M. Paul Dubois has been selected as the sculptor, and the site for the statue will probably be the space between the Rue de Médecis and the Luxembourg Gardens. More than £20,000 has already been spent in the erection of statues of Pasteur in various parts of France.

THE city of Mexico has given the name of Pasteur to the gardens situated in front of the National School of Medicine in that city.

THE following resolutions were adopted by the staff of the United States National Museum, February 6th:

"WHEREAS, Major Charles E. Bendire, of the United States Army, Honorary Curator of the Department of Oology in the United States National Museum, has been removed by death,

"Resolved: That in Major Bendire's death the National Museum suffers the loss of an officer who took the keenest interest in his special branch of work; whose constant aim was to improve and develop the department under his charge; and to whose unfailing interest the present admirable condition of the oological collection is due.

"Resolved: That in his death the National Museum has lost a valued member of its scientific staff whose place it will be difficult to fill, and American ornithology has been robbed of one of its most earnest workers."

PROFESSOR GALILEO FERRARIS died at Rome on February 7th, aged fifty years. He was principal and professor of applied physics of the Museo Industriale of Turin and a member of the Italian Senate. He made important contributions to electrical science, especially to the phenomena of alternating currents.

WE regret to record the deaths of Professor S  therberg, of Stockholm, the pioneer in the Swedish system of curative gymnastics, aged 84; of Dr. David Kirnaldy, an engineer, on January 25th, at the age of 76, and of Dr. Hermann von Nordlinger, formerly professor of

forestry at Tübingen, on January 19th, at the age of 79.

A RESOLUTION recently adopted by Congress provides for the distribution of the topographic maps and geologic atlases of the United States Geological Survey, to the extent of 500 of each, gratuitously among foreign governments and the departments of our own government, to literary and scientific bodies and educational institutions. The measure is designed to remedy a defect in an act passed a year ago which provides for the selling of the maps and folios at cost, with 10 per cent. added. As construed, the original act did not warrant the free distribution mentioned. The geological folios have been disposed of by sale since the first folio was issued, two years ago, but the sale of the topographic maps has only recently been begun. They are sold at 5 cents. On the back of each sheet is now printed an explanatory text, an innovation which will doubtless be of advantage.

THE Senate has passed the agricultural appropriation bill calling for \$3,212,902. This is an increase of \$50,200 over the bill as passed by the House, \$30,000 of which is for the free distribution of seeds.

LORD LISTER, in a communication to the *British Medical Journal*, announces that he has the profound satisfaction of being able to state, on the authority of the India office, that the Bombay government intend to make use of the services of M. Yersin in the treatment of persons suffering from plague. M. Yersin is now on his way to the stricken region to give a full trial to his method, and Lord Lister has learned through another channel that before the middle of February the serum treatment will probably have begun in Bombay.

Knowledge, the English monthly journal of popular science, is publishing a series of articles on 'The Science of the Queen's Reign.' The current number contains an interesting survey of 'Sixty Years of Astronomical Research' by Miss Agnes M. Clerke. The same number includes a paper by Dr. Isaac Roberts on 'Evidence of the Evolution of Stellar Systems,' with reproductions of photographs of spiral nebulae. Astronomy, under the direction of Mr. E.

Walter Maunder, is always well represented in *Knowledge*.

SURGEON-GENERAL GEORGE M. STERNBERG will review our knowledge of 'The Malarial Parasite and other Pathogenic Protozoa' in *Appletons' Popular Science Monthly* for March, telling how they were discovered and upon what grounds they are accepted as specific infectious agents. Other articles are promised by Professor D. W. Hering on 'The Present State of our Knowledge of the X-rays' and by President Jordan on 'The Stability of Truth.'

THE following items of news are from the current number of *Nature*: At the last meeting of the Chemical Society it was announced that Mr. J. J. Tustin had made a donation of one thousand guineas to the research fund of the Society. The annual meeting of the German Botanical Association will be held this year in Frankfurt a. Main, commencing on September 22d. A botanical museum has been established at Weimar, at the sole cost of Professor Haussknecht. It is designed to be 'a Central Institution for investigations in systematic botany,' and it will be under the control of the Thuringian Botanical Union.

THE new Prussian budget includes \$40,000 as the first appropriation for a chemical laboratory for the University of Berlin, the estimated cost of which is \$250,000. It will be situated on the Hannover'schen Strasse and will contain tables for 275 students and a lecture room seating about 400.

THE establishment of a National Patent Museum is being urged in Great Britain. The fees received by the Patent Office are much greater than the expenses, and the government will shortly be asked to use part of the surplus for the establishment of a museum.

JOHN NICHOLAS BROWN has given to the Providence Public Library Association, for the erection of a library building in that city, the sum of \$200,000.

ACCORDING to an official notification of the trustees of the 'Schwestern Fröhlich Stiftung' in Vienna, certain donations and pensions will be granted from the funds of this charity this year in accordance with the will of the testatrix, Miss Anna Fröhlich, to deserving persons of

talent who have distinguished themselves in any of the branches of science, art and literature, who may be in want of pecuniary support, either through accident, illness or infirmity consequent upon old age.

THE will of the late Professor William H. Pancoast leaves his anatomical and surgical collections and \$600 per annum to the Medico-Chirurgical College of Philadelphia.

A BILL has been introduced in the Pennsylvania Legislature appropriating \$25,000 to furnish test standards for the inspectors of weights, measures and scales in Philadelphia.

THE botanical department of Cornell University is in receipt of a collection of 750 specimens of the flora of the North Carolina mountain region, presented by the Biltmore Herbarium in return for a collection of Arctic plants presented by the department.

THE Royal Geographical Society gave a reception on February 8th, in Albert Hall, London, in honor of Dr. Nansen. Sir Clements Markham, the President of the Society, presided and the special gold medal of the Society was presented to Dr. Nansen. Dr. Nansen delivered a lecture describing the voyage of the *Fram* and his adventures, but it appears from the cable dispatches that the scientific results of the expedition were not enlarged upon. A Reuter despatch of January 29th says that during his visit to Great Britain Dr. Nansen will deliver forty-seven lectures. The explorer will then go to Germany, and at the end of March will be present at a great demonstration of the Geographical Society in Berlin, organized in his honor. It is stated that Dr. Nansen declined an offer of 100,000 marks for 100 lectures in Germany. On leaving Berlin Dr. Nansen will go to St. Petersburg, where he will have an official reception. Subsequently he will visit Paris in response to an invitation conveyed to him by the French Consul-General in Christiania, and will again be the object of an official reception. During the summer months Dr. Nansen will rest in Norway, and will superintend the erection of his new villa on the higher lands of Lysaker, Christiania Fiord, on ground originally belonging to his grandfather. Early in October, accompanied by his wife, Dr. Nansen

will leave for New York in order to deliver a course of fifty lectures in various cities of the United States. Dr. Nansen has contracted with a Boston and Chicago lecturing agency for fifty lectures, but it is probable that the explorer's tour in the United States will be considerably extended.

IN addition to the methods of color photography devised by Lippmann, Ives and Joly, a new invention is claimed by MM. Chassagne and Dansac. For the present the method must be regarded as pseudo-scientific, as the process is kept secret. It has, however, been exhibited before men of science in London, and is reported in the *Society of Arts Journal* and the *Times*. The process is said to be simple and inexpensive. A negative is taken on a gelatine plate, which has been treated with a solution of certain salts (the nature of the solutions used is for the present kept). The negative is developed and fixed in the ordinary way, and when finished looks like any other negative. From it a positive is printed on sensitized paper or on a gelatine film (if a transparency is desired), plate or paper having previously been treated with the unknown solution. The positive looks exactly like an ordinary photographic print or transparency, and shows no trace of color. It is then washed over with three colored solutions, blue, green and red, and it takes up in succession the appropriate color in the appropriate parts, the combinations of the colors giving all varieties of tint. Thus, in a landscape the trees take on various hues of green, the sky becomes blue, the flowers show their proper colors, the bricks and tiles of the houses are red, and so on. In a portrait the flesh tints come out well, and the different colors of the costumes are accurately given. The general appearance of the picture is that of a colored photograph. Looked at from a distance it would be taken for one. Inspected under a high magnifying power it is seen that the colors follow the details in a manner hardly possible for hand work.

THE State Geological Survey of New Jersey has proposed a plan for draining the meadows adjacent to Jersey City. According to the report in the *Scientific American*, State Geologist Smock recently visited Holland and investigated the

vast drainage systems in that country. Engineer C. C. Vermuele has made a report stating that underlying the 27,000 acres of marsh is a mass of alluvium mixed with peat, wood and other vegetable matter, more or less decayed. The depth of this accumulation ranges generally from seven to fifteen feet. The natural level of the surface is three to four inches above mean high tide, but the whole is frequently overflowed, and such extreme tides as that of the second week of last November cover it to an average depth of eighteen inches. Lately an unhealthy and undesirable population is beginning to be crowded upon them. It is stated that of the two systems of reclamation, filling and diking, the latter is the better and, indeed, the only one feasible in this case. The area can be embanked and pumping works installed for about \$1,000,000, or less than \$40 per acre. The interest charges and operating expenses are estimated at \$6 to \$7 per acre, and it is predicted that in a few years this charge could be entirely covered by assessments on the property itself, any deficiencies in the interim being met by the surrounding districts that are benefited by the undertaking.

ACCORDING to *Natural Science* a new departure has been made this winter at the Science and Art Museum, Dublin, in a series of Museum demonstrations, undertaken by members of the staff and other helpers. Two demonstrations a week have been given through December and January, natural history alternating with art subjects. The difficulty of exhibiting small Museum specimens to a large audience led to a restriction of the number of tickets issued for each occasion to thirty, or at most fifty. It is satisfactory to record that there was a large demand for tickets, and that the audiences seemed thoroughly interested with the explanations of the objects.

THE Tree-Planting Association of New York has been incorporated, Mayor Strong being President; Cornelius B. Mitchell, Vice-President; James Macnaughtan, Treasurer, and W. A. Styles, Secretary. The Association supplies to its members the fullest information as to the kind of trees most suitable for city planting, together with the names of responsible nurserymen and the prices they charge for the completed work.

Applications for membership may be made to the Tree-Planting Association office, Nos. 64 and 66 White Street.

IN the current number of the *American Naturalist*, Dr. Bessey suggests that the recent appearance of two important works on North American botany, in which the English units and measurements are less used throughout, calls attention to the need of some missionary work among American botanists. "We take part, from time to time, in the action of the American Association for the Advancement of Science, in which, in vigorous and logical sentences, we express our admiration for the metric system and our conviction that the United States Congress is derelict toward this important matter. We urge Congress to make the use of this system compulsory, and yet we go on calmly writing books in which we use the most antiquated of measuring units. Not content with using feet and inches, we express fractions of inches in lines! We vote enthusiastically that mechanics, surveyors, farmers, statisticians and schoolmasters shall use the metric system exclusively, and yet we, the botanists, who, of course, are 'the salt of the earth,' are slow in doing what we so urgently recommend others to do."

UNIVERSITY AND EDUCATIONAL NEWS.

THE last number of the *Academische Revue* contains details regarding the salaries and fees of university professors in the Prussian universities which are of interest in view of the proposed plan to equalize the salaries. Of 492 full professors in the eleven universities 40 per cent. receive less than \$1,200, and 40 per cent. receive \$2,000 or more in salaries. The additional amount received in fees is on the average about \$400, though there are four cases in which the fees amount to \$5,000 or more. The salaries of associate professors are about half those of ordinary professors.

It is reported that Professor Munk, of Berlin, or Professor Kühne, of Heidelberg, will be appointed to the chair of physiology at Berlin, vacant by the death of Du Bois-Reymond.

It is understood that the presidency of Washington and Lee University, Lexington,